

heating said semiconductor film so that crystallization of said semiconductor film occurs only in the first region thereof while the semiconductor film in said second region is not crystallized, wherein said crystallization proceeds in a direction parallel to a major surface of said substrate from said selected region with diffusion of said metal through the semiconductor film, thereby forming crystals of said semiconductor film in said first region extending parallel with the major surface of the substrate;

patterning said semiconductor film in order to form a first semiconductor island comprising the first region and a second semiconductor island comprising of the second region; and

forming a first thin film transistor by using said first semiconductor island and a second thin film transistor by using said second semiconductor island,

wherein said first thin film transistor is so arranged that said crystals extend along with a direction connecting source and drain regions of said first thin film transistor.

31. (Amended) A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film to be crystallized over a substrate, said semiconductor film having a first region and a second region;

disposing a metal containing material in contact with a selected region of only the first region of the semiconductor film, said metal being capable of promoting crystallization of said semiconductor film;

heating said semiconductor film so that crystallization of said semiconductor film occurs only in the first region thereof while the semiconductor film in said second region is not crystallized, wherein said crystallization proceeds in a direction parallel to a major surface of said substrate from said selected region with diffusion of said metal through the semiconductor film, thereby forming crystals of said semiconductor film in said first region extending parallel with the major surface of the substrate;

patterning said semiconductor film in order to form a first semiconductor island comprising the first region and a second semiconductor island comprising the second region; and

forming a first thin film transistor by using said first semiconductor island and a second thin film transistor by using said second semiconductor island,

wherein said first thin film transistor is so arranged that said crystals extend along with a direction connecting source and drain regions of said first thin film transistor, and

wherein a concentration of said metal in said second region is lower than that in said first region.

33. (Amended) A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film to be crystallized over a glass substrate having a glass strain point of 593°C or less, said semiconductor film having a first region and a second region;

disposing a metal containing material in contact with a selected region of only the first region of the semiconductor film, said metal being capable of promoting crystallization of said semiconductor film;

heating said semiconductor film so that crystallization of said semiconductor film occurs only in the first region thereof while the semiconductor film in said second region is not crystallized, wherein said crystallization proceeds in a direction parallel to a major surface of said substrate from said selected region with diffusion of said metal through the semiconductor film, thereby forming crystals of said semiconductor film in said first region extending parallel with the major surface of the substrate;

patterning said semiconductor film in order to form a first semiconductor island comprising the first region and a second semiconductor island comprising the second region; and

forming a first thin film transistor by using said first semiconductor island and a second thin film transistor by using said second semiconductor island,

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wherein said first thin film transistor is so arranged that said crystals extend along with a direction connecting source and drain regions of said first thin film transistor.

36. (Amended) A method of manufacturing a semiconductor device for an active matrix type electro-optical display having a driving circuit portion and a display portion comprising the steps of:

forming a semiconductor film to be crystallized over a substrate, said semiconductor film having a first region on said driving circuit region and a second region on said display portion;

disposing a metal in contact with a selected region of only the first region of the semiconductor film, said metal being capable of promoting crystallization of said semiconductor film;

heating said semiconductor film so that crystallization of said semiconductor film occurs only in the first region thereof while the semiconductor film in said second region is not crystallized, wherein said crystallization proceeds in a direction parallel to a major surface of said substrate from said selected region with diffusion of said metal through the semiconductor film, thereby forming crystals of said semiconductor film in said first region extending parallel with the major surface of the substrate; and

after the crystallization of said semiconductor film, forming a first thin film transistor by using said crystals of the semiconductor film and a second film transistor by using the second region of the semiconductor film,

wherein said first thin film transistor is so arranged that said crystals extend along with a direction connecting source and drain regions of said first thin film transistor.

42. (Amended) A method of manufacturing a semiconductor device comprising the steps

of:

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forming a semiconductor film to be crystallized over a substrate, said semiconductor film having a first region and a second region;

disposing a metal containing material in contact with a selected region of only the first region of the semiconductor film, said metal being capable of promoting crystallization of said semiconductor film;

heating said semiconductor film so that crystallization of said semiconductor film occurs only in the first region thereof while the semiconductor film in said second region is not crystallized, wherein said crystallization proceeds in a direction parallel to a major surface of said substrate from said selected region with diffusion of said metal through the semiconductor film, thereby forming crystals of said semiconductor film in said first region extending parallel with the major surface of the substrate;

patterning said semiconductor film in order to form a first semiconductor island comprising the first region and a second semiconductor island comprising the second region; and

forming a first thin film transistor by using said first semiconductor island and a second thin film transistor by using said second semiconductor island,

wherein said first thin film transistor is so arranged that said crystals extend along with a direction connecting source and drain regions of said first thin film transistor, and

wherein said first region and said second region each includes hydrogen.

45. (Amended) A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film to be crystallized over a substrate, said semiconductor film having a first region and a second region;

disposing nickel in contact with a selected region of only the first region of the semiconductor film;

heating said semiconductor film so that crystallization of said semiconductor film occurs only in the first region thereof while the semiconductor film in said second region is not crystallized, wherein said crystallization proceeds in a direction parallel to a major surface of said substrate from said selected region with diffusion of said nickel through the semiconductor film,

thereby forming crystals of said semiconductor film in said first region extending parallel with the major surface of the substrate;

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patterning said semiconductor film in order to form a first semiconductor island comprising the first region and a second semiconductor island comprising the second region; and
forming a first thin film transistor by using said first semiconductor island and a second thin film transistor by using said second semiconductor island,

wherein said first thin film transistor is so arranged that said crystals extend along with a direction connecting source and drain regions of said first thin film transistor

47. (Amended) A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film to be crystallized over a substrate, said semiconductor film having a first region and a second region;

disposing nickel in contact with a selected region of only the first region of the semiconductor film;

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heating said semiconductor film so that crystallization of said semiconductor film occurs only in the first region thereof while the semiconductor film in said second region is not crystallized, wherein said crystallization proceeds in a direction parallel to a major surface of said substrate from said selected region with diffusion of said nickel through the semiconductor film, thereby crystals of said semiconductor film in said first region extending parallel with the major surface of the substrate;

patterning said semiconductor film in order to form a first semiconductor island comprising the first region and a second semiconductor island comprising the second region; and

forming a first thin film transistor by using said first semiconductor island and a second thin film transistor by using said second semiconductor island,

wherein said first thin film transistor is so arranged that said crystals extend along with a direction connecting source and drain regions of said first thin film transistor.
